UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,904	04/14/2004	Michael C. Lewis	17459US03	7595

23446 7590 03/22/2007

MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661

EXAMINER	
TAN, ALVIN H	
ART UNIT	**PAPER NUMBER**
2173	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/824,904	LEWIS ET AL.	
	Examiner	Art Unit	
	Alvin H. Tan	2173	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 April 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/14/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Remarks

1. Claims 1-31 have been examined and rejected. This is the first Office action on the merits.

Specification

2. The disclosure is objected to because of the following informalities:

   a. On *[page 3, line 12]*, Examiner suggests changing "display 14" to --display 54--.

   b. On *[page 16, line 21]*, Examiner suggests changing "section 1521" to --section 151--.

   c. *[Figure 5B, reference character 154]* is shown as being intersected by primitives 4, 5, and 6, yet *[figure 5C, reference character 164]* fails to show it. See *[page 13, lines 18-19]*.

   Appropriate correction is required.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "163" of *[figure 5C]* has been used to designate two different bins containing different primitives.

4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Double Patenting

5. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

6. Claims 2-6, 8-11, 14-18, 20-23, 26-28, 30, and 31 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-5, 6-9, 10-14, 15-18, 19-21, 22, and 23 respectively, of prior U.S. Patent No. 6,741,243. This is a double patenting rejection.

Application 10/824904		Patent 6,741,243	
Claim 2 Lines 1-3 of claim 1	A method for providing a graphical image on a display of a system, the graphical image being provided from data describing a plurality of primitives, the display including a plurality of pixels, the method comprising the steps of:	Claim 1 Column 14, lines 60-63	A method for providing a graphical image on a display of a system, the graphical image being provided from data describing a plurality of primitives, the display including a plurality of pixels, the method comprising the steps of:
Lines 4-5 of claim 1	(a) providing a plurality of variable-sized bins containing the plurality of primitives;	Column 14, lines 64-65	(a) providing a plurality of variable-sized bins containing the plurality of primitives;
Lines 5-7 of claim 1	and (b) rendering the plurality of primitives by rendering each of the plurality of variable-sized bins variable-sized bin by variable-sized bin.	Column 15, lines 14-17	and (b) rendering the plurality of primitives by rendering each of the plurality of variable-sized bins variable-sized bin by variable-sized bin.
Lines 1-3 of claim 2	The method of claim 1 wherein the system includes a plurality of processors for processing a portion of the plurality of primitives in parallel, and wherein the variable-sized bin providing step (a) further includes the steps of:	Column 14, line 66 to column 15, line 2	wherein the system includes a plurality of processors for processing a portion of the plurality of primitives in parallel, and wherein the variable-sized bin providing step (a) further includes the steps of:
Line 4 of claim 2	(a1) storing the plurality of primitives in a plurality of bins;	Column 15, lines 3-4	(a1) storing the plurality of primitives in a plurality of bins;
Lines 5-6 of claim 2	(a2) determining if a part of a portion of the plurality of bins can be combined without causing the plurality of processors to overflow; and	Column 15, lines 5-7	(a2) determining if a part of a portion of the plurality of bins can be combined without causing the plurality of processors to overflow; and
Lines 7-9 of claim 2	(a3) combining the part of the portion of plurality of bins to provide the plurality of variable-sized bins if the part of the portion of the plurality of bins can be combined without causing the plurality of processors to overflow;	Column 15, lines 8-12	(a3) combining the part of the portion of plurality of bins to provide the plurality of variable-sized bins if the part of the portion of the plurality of bins can be combined without causing the plurality of processors to overflow;
Lines 10-11 of claim 2	wherein the plurality of variable-sized bins can include fewer bins than the plurality of bins.	Column 15, lines 13-14	wherein the plurality of variable-sized bins can include fewer bins than the plurality of bins;
Claim 3 Lines 1-2	The method of claim 2 wherein the combining step (a3) further includes the step of:	Claim 2 Column 15, lines 18-19	The method of claim 1 wherein the combining step (a3) further includes the step of:
Lines 3-5	(a3i) combining the part of the portion of the plurality of bins so that a particular primitive of the plurality of primitives is provided only once for a corresponding variable-sized bin of the plurality of variable-sized bins.	Column 15, lines 19-23	(a3i) combining the part of the portion of the plurality of bins so that a particular primitive of the plurality of primitives is provided only once for a corresponding variable-sized bin of the plurality of variable-sized bins.

Claim 4 Lines 1-2	The method of claim 2 wherein the variable-sized bin providing step (a) further includes the steps of:	Claim 3 Column 15, lines 24-25	The method of claim 1 wherein the variable-sized bin providing step (a) further includes the steps of:
Lines 3-6	(a4) providing a display list containing the plurality of primitives, the display list including the plurality of primitives ordered according to the plurality of variable-sized bins, wherein a particular primitive of the plurality of primitives is provided to the display list only once for a corresponding variable-sized bin of the plurality of variable-sized bins.	Column 15, lines 26-32	(a4) providing a display list containing the plurality of primitives, the display list including the plurality of primitives ordered according to the plurality of variable-sized bins, wherein a particular primitive of the plurality of primitives is provided to the display list only once for a corresponding variable-sized bin of the plurality of variable-sized bins.
Claim 5 Lines 1-3	The method of claim 2 wherein each of the plurality of bins includes a first boundary, wherein each of the plurality of primitives intersects a second portion of the plurality of bins, and wherein the storing step (a1) further includes the step of:	Claim 4 Column 15, lines 33-37	The method of claim 1 wherein each of the plurality of bins includes a first boundary, wherein each of the plurality of primitives intersects a second portion of the plurality of bins, and wherein the storing step (a1) further includes the step of:
Lines 4-5	(a1i) storing each of the plurality of primitives in the second portion of the plurality of bins based on whether the first boundary is crossed.	Column 15, lines 38-40	(a1i) storing each of the plurality of primitives in the second portion of the plurality of bins based on whether the first boundary is crossed.
Claim 6 Lines 1-3	The method of claim 5 wherein each of the plurality of primitives includes a minimum y value, a top scan line, and bottom scan line, and wherein the storing step (a1) further includes the step of:	Claim 5 Column 15, lines 41-44	The method of claim 4 wherein each of the plurality of primitives includes a minimum y value, a top scan line, and bottom scan line, and wherein the storing step (a1) further includes the step of:
Lines 4-5	(a1ii) storing each of the plurality of primitives in the second portion of the plurality of bins in an order based on the minimum y value; and	Column 15, lines 45-47	(a1ii) storing each of the plurality of primitives in the second portion of the plurality of bins in an order based on the minimum y value; and
Lines 6-7	(a1iii) storing the top scan line and the bottom scan line for each of the plurality of primitives in the second portion of the plurality of bins.	Column 15, lines 48-50	(a1iii) storing the top scan line and the bottom scan line for each of the plurality of primitives in the second portion of the plurality of bins.
Claim 8 Lines 1-2 of claim 1	A method for providing a graphical image on a display of a system, the graphical image being provided from data describing a plurality of primitives,	Claim 6 Column 15, lines 51-53	A method for providing a graphical image on a display of a system, the graphical image being provided from data describing a plurality of primitives,
Lines 2-3 of claim 1	the display including a plurality of pixels, the method comprising the	Column 15, lines 55-57	the display including a plurality of pixels, the method comprising the

	steps of:		steps of:
Lines 4-5 of claim 1	(a) providing a plurality of variable-sized bins containing the plurality of primitives;	Column 15, lines 58-59	(a) providing a plurality of variable-sized bins containing the plurality of primitives
Lines 5-7 of claim 1	and (b) rendering the plurality of primitives by rendering each of the plurality of variable-sized bins variable-sized bin by variable-sized bin.	Column 16, lines 9-11	and (b) rendering the plurality of primitives by rendering each of the plurality of variable-sized bins variable-sized bin by variable-sized bin;
Lines 1-2 of claim 7	The method of claim 1 wherein the variable-sized bin providing step (a) further includes the steps of:	Column 15, lines 59-60	and wherein the variable-sized bin providing step (a) further includes the steps of:
Line 3 of claim 7	(a1) determining a plurality of bins for a previous frame; and	Column 15, lines 61-62	(a1) determining a plurality of bins for a previous frame; and
Line 4 of claim 7	(a2) providing the plurality of bins containing the plurality of primitives.	Column 15, lines 63-64	(a2) providing the plurality of bins containing the plurality of primitives;
Lines 1-2 of claim 8	The method of claim 7 wherein the system further includes a plurality of processors for processing a portion of the plurality of primitives in parallel	Column 15, lines 53-55	wherein the system further includes a plurality of processors for processing a portion of the plurality of primitives in parallel,
Lines 2-4 of claim 8	and wherein the variable-sized bin providing step (a) further includes the step of: (a3) storing the plurality of primitives in the plurality of bins;	Column 15, lines 65-66	(a3) storing the plurality of primitives in the plurality of bins;
Lines 5-6 of claim 8	(a4) determining if a part of a portion of the plurality of bins can be combined without causing the plurality of processors to overflow; and	Column 16, lines 1-3	(a4) determining if a part of a portion of the plurality of bins can be combined without causing the plurality of processors to overflow; and
Lines 7-9 of claim 8	(a5) combining the part of the portion of the plurality of bins to provide the plurality of variable-sized bins if the part of the portion of the plurality of bins can be combined without causing the plurality of processors to overflow;	Column 16, lines 4-8	(a5) combining the part of the portion of the plurality of bins to provide the plurality of variable-sized bins if the part of the portion of the plurality of bins can be combined without causing the plurality of processors to overflow;
Lines 10-11 of claim 8	wherein the plurality of variable-sized bins can include fewer bins than the plurality of bins.	Column 16, lines 12-13	wherein the plurality of variable-sized bins can include fewer bins than the plurality of bins.
Claim 9 Lines 1-2	The method of claim 8 wherein the combining step (a5) further includes the steps of:	Claim 7 Column 16, lines 14-15	The method of claim 6 wherein the combining step (a5) further includes the steps of:
Lines 3-5	(a5i) combining the part of the portion of the plurality of bins so that a particular primitive of the plurality of primitives is provided only once for a corresponding variable-sized bin of the plurality of variable-sized bins.	Column 16, lines 16-20	(a5i) combining the part of the portion of the plurality of bins so that a particular primitive of the plurality of primitives is provided only once for a corresponding variable-sized bin of the plurality of variable-sized bins.

Claim 10 Lines 1-2	The method of claim 8 wherein the variable-sized bin providing step (a) further includes the steps of:	Claim 8 Column 16, lines 21-22	The method of claim 6 wherein the variable-sized bin providing step (a) further includes the steps of:
Lines 3-7	(a6) providing a display list containing the plurality of primitives, the display list including the portion of the plurality of primitives for each of the plurality of variable-sized bins ordered variable-sized bin by variable-sized bin, wherein a particular primitive of the plurality of primitives is provided to the display list only once for a corresponding variable-sized bin of the plurality of variable-sized bins.	Column 16, lines 23-30	(a6) providing a display list containing the plurality of primitives, the display list including the portion of the plurality of primitives for each of the plurality of variable-sized bins ordered variable-sized bin by variable-sized bin, wherein a particular primitive of the plurality of primitives is provided to the display list only once for a corresponding variable-sized bin of the plurality of variable-sized bins.
Claim 11 Lines 1-2 of claim 1	A method for providing a graphical image on a display of a system, the graphical image being provided from data describing a plurality of primitives,	Claim 9 Column 16, lines 31-33	A method for providing a graphical image on a display of a system, the graphical image being provided from data describing a plurality of primitives,
Lines 2-3 of claim 1	the display including a plurality of pixels, the method comprising the steps of:	Column 16, lines 35-37	the display including a plurality of pixels, the method comprising the steps of:
Lines 4-5 of claim 1	(a) providing a plurality of variable-sized bins containing the plurality of primitives;	Column 16, lines 38-39	(a) providing a plurality of variable-sized bins containing the plurality of primitives;
Lines 5-7 of claim 1	and (b) rendering the plurality of primitives by rendering each of the plurality of variable-sized bins variable-sized bin by variable-sized bin.	Column 16, lines 49-52	and (b) rendering the plurality of primitives by rendering each of the plurality of variable-sized bins variable-sized bin by variable-sized bin.
Lines 1-2 of claim 7	The method of claim 1 wherein the variable-sized bin providing step (a) further includes the steps of:	Column 16, lines 40-41	wherein the variable-sized bin providing step (a) further includes the step of:
Line 3 of claim 7	(a1) determining a plurality of bins for a previous frame; and	Column 16, lines 42-43	(a1) determining a plurality of bins for a previous frame; and
Line 4 of claim 7	(a2) providing the plurality of bins containing the plurality of primitives.	Column 16, lines 44-45	(a2) providing the plurality of bins containing the plurality of primitives
Lines 1-2 of claim 11	The method of claim 7 wherein the system further includes a plurality of processors for processing a portion of the plurality of primitives in parallel	Column 16, lines 33-35	wherein the system further includes a plurality of processors for processing a portion of the plurality of primitives in parallel,
Lines 2-3 of claim 11	And wherein the variable-sized bin providing step (a) further includes the step of: (a3) determining if a portion of the plurality of bins causes the plurality of processors to	Column 16, lines 46-47	(a3) determining if a portion of the plurality of bins causes the plurality of processors to overflow; and

	overflow; and		
Line 6 of claim 11	(a4) splitting each bin of the portion of the plurality of bins into two bins.	Column 16, lines 48-49	(a4) splitting each bin of the portion of the plurality of bins into two bins;

Claims 14-18 and 20-23 (Computer Readable Medium) recite similar limitations as that of claims 2-6 and 8-11 (Method) in the present application. Therefore, similar to the chart above, claims 14-18 and 20-23 read on claims 10-14 and 15-18 of patent 6,741,243.

Claims 26-28, 30, and 31 (System) recite similar limitations as that of claims 2-4, 8, and 11 (Method) in the present application. Therefore, similar to the chart above, claims 26-28, 30, and 31 read on claims 19-21, 22, and 23 of patent 6,741,243.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. Claims 1, 7, 12, 13, 19, 24, 25, and 29 rejected under 35 U.S.C. 102(e) as being anticipated by Smith et al (U.S. Patent No. 6,424,345), herein after, Smith.

Claims 1, 7, 12 (Method)

Claims 13, 19, 24 (Computer Readable Medium)

Claims 25, 29 (System)

8-1. Regarding claims 1, 7, 13, 19, 25, and 29, Smith teaches the claim for providing a graphical image on a display of a system, the graphical image being provided from data describing a plurality of primitives, the display including a plurality of pixels, comprising the steps of providing a plurality of variable-sized bins containing the plurality of primitives and rendering the plurality of primitives by rendering each of the plurality of variable sized bins variable sized bin by variable sized bin, by disclosing *[figure 3; column 4, lines 61-67; column 5, lines 1-22].*

8-2. Regarding claims 12 and 24, Smith teaches the plurality of primitives includes a plurality of fragments intersect each pixel of a portion of the plurality of pixels and rendering each of the plurality of variable sized bins pixel by pixel in raster order, the plurality of fragments being provided pixel by pixel for the portion of the plurality of pixels, by disclosing *[figure 7; column 6, lines 10-48].*

Allowable Subject Matter

9. Claims 2-6, 8-11, 14-18, 20-23, 26-28, and 30-31 are objected to as being dependent upon a rejected base claim. The claims are also rejected under 35 U.S.C. 101 for double patenting. The claims would be allowable by overcoming the double patenting rejection and if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record failed to teach or disclose either singularly or in combination a method for providing a graphical image on a display of a system; wherein the method further comprises the steps of: including a plurality of processors for processing a portion of the plurality of primitives in parallel, and wherein the variable sized bin providing step (a) further includes the steps of: storing the plurality of primitives in a plurality of bins; determining if a part of a portion of the plurality of bins can be combined without causing the plurality of processors overflow; and combining the part of the portion of plurality of bins to provide the plurality of variable sized bins if the part portion of the plurality of bins can be combined without causing the plurality of processors to overflow; wherein the plurality of variable sized bins can include fewer bins than the plurality of bins (as per claims 2, 8, 14, 20, 26, and 30). These distinct steps of the present claimed invention were not found to be anticipated, suggested or made obvious by the prior art of record.

The prior art of record further failed to teach or disclose either singularly or in combination a method for providing a graphical image on a display of a system; wherein the method further comprises the steps of: including a plurality of processors for processing a portion of the plurality of primitives in parallel, and wherein the variable sized bin providing step (a) further includes the steps of: determining if a portion of the plurality of bins causes the plurality of processors to overflow and splitting each bin of the portion of the plurality of bins into two bins (as per claims 11 and 23). These distinct steps of the present claimed invention were not found to be anticipated, suggested or made obvious by the prior art of record.

Conclusion

10. The prior art made of record on attached form PTO-892 and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R § 111(c) to consider these references fully when responding to this action. The documents cited therein teach similar systems for reducing overflows in a computer graphics system.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alvin H. Tan whose telephone number is 571-272-8595. The examiner can normally be reached on Mon-Thu 9:30-7 and alternating Fridays 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kristine Kincaid can be reached on 571-272-4063. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AHT
Assistant Examiner
Art Unit 2173

TADESSE HAILU
Patent Examiner